REMARKS

The Examiner rejected claims 1-26 under 35 U.S.C. §103(a) as being unpatentable over Velez (U.S. Patent Number 6,678,006) in view of Herrera (U.S. Patent Number 6,208,350). Applicants respectfully traverse the Examiner's rejection. In particular, Herrera fails to teach or suggest receiving a subpicture signal, the subpicture signal providing a plurality of alpha values and information identifying or to identify a plurality of subpicture Y, U and V values, blending each of the Y values of the video signal with a corresponding Y value of the subpicture signal based on a corresponding alpha value to generate a set of blended Y values, blending each of the U values of the video signal with a corresponding U value of the subpicture based on a corresponding alpha value to generate a set of blended U values and blending each of the V values of the video signal with a corresponding V value of the subpicture based on a corresponding alpha value to generate a set of blended Y values.

As noted on page 15, lines 10-14, of the specification:

> "According to an embodiment, alpha-blending is performed at render time using multiple passes preferably in a planar 4:2:0 format to simplify circuitry and reduce costs. By using multiple passes to blend video data provided in a planar format, the memory bandwidth can be more efficiently used because data can be more efficiently retrieved from memory in large chunks from contiguous memory locations, rather than switching between three different data streams/locations."

Furthermore, as noted on page 17, line 11 to page 18, line 18 of the specification:

> "According to an embodiment, in a first pass 435, each of the Y values of a frame (or picture, etc.) are alpha-blended and written to a new Y surface 432 of a new (blended) frame 430. This may be performed in a streaming fashion. This may be performed as follows. A Y value is output from the Y surface 412 of video frame 410 and is then input to alpha-blend unit 445. An 8-bit value (including a 4-bit index and a 4-bit alpha value) of the subpicture data array 420 (from the subpicture data stream) corresponding to the same pixel is output for processing. The index is input to the subpicture palette 157 and the alpha value is input to the alpha blend unit 445. Because the Y values are being processed on this first pass 435, the subpicture palette 157 outputs the 8-bit palette Y value 510 to the alpha blend unit 445. The alpha blend unit 445 blends the subpicture Y value 510 with the Y value from the video frame 410 based on the input alpha value, and outputs a blended Y value which is written to a Y surface 432 of a new (blended) frame 430 in planar YUV 4:2:0 format. This process is repeated for each of the Y values in the Y surface 412 of the video frame 410. In this manner, in the first pass 435, each of the Y values of the video frame 410 are blended and then written to a new Y surface 432 of a blended or new frame 430. The process for the first pass (to process the Y values) is illustrated in detail in Fig. 4.
>
> In a second pass 450, each of the Cr values from a Cr surface 414 of video frame 410 is similarly alpha-blended and then written to a new Cr surface 434 of a new (blended) video frame (or picture) 430. The same subpicture data

array 420 that was used for the Y blending process is also used for blending Cr values. During the second pass 450, the subpicture palette 157 outputs an 8-bit Cr palette value 515 (Fig. 5) corresponding to the 4-bit index.

In a third pass 455, each of the Cb values from a Cb surface 416 of video frame 410 is similarly alpha-blended and then written to a new Cb surface 436 of a new (blended) video frame (or picture) 430. The same subpicture data array 420 that was used for the Y blending process (first pass 435) and the Cr blending process (second pass 450) is also used for blending Cb values here in the third pass. Thus, during the third pass 455, the subpicture palette 157 outputs 8-bit Cb palette values 520 (Fig. 5) corresponding to the 4-bit indices.

The pixel data (YCrCb values) of the video frame 410 is provided in a 4:2:0 planar format, and is blended in 4:2:0 format using a multi-pass technique described above, and then stored in a 4:2:0 planar format as a new (blended) frame 430."

Furthermore, there is no evidence of a motivation to combine the references at issue; that, in fact, there is a teaching away. A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. A person of ordinary skill in the art would not have been motivated to combine the prior art to achieve the claimed invention and there would not have been a reasonable expectation of success in doing so." Velez specifically provides at column 2, lines 1-25:

> **While alpha blending would produce a higher quality picture, it does so at a cost that is prohibitive to commercial use.** In order to alpha blend the DVD video data and the DVD subpicture data, the DVD subpicture data needs to be completely decoded. As is known, the DVD subpicture data is encoded based on run length encoding, which includes a repeating pattern and how often it is repeated. Such encoding, however, does not provide an indication as to the beginning of a line within a frame, or field, of data. Thus, the DVD subpicture needs to be completely decoded and stored in a separate frame buffer from the DVD video data. Once the decoded subpicture data is obtained, it can be blended with the video data and re-written into the frame buffer. This approach requires a read-write-read operation and a substantial amount of additional memory. The read-write-read operation for commercial processors is too process intensive to allow alpha blending to be a viable commercial solution for DVD video and subpicture data blending. The additional memory required also limits the commercial viability of the alpha blending.
>
> Therefore, it is desirable to develop a method and apparatus that blends DVD video data and DVD subpicture data without substantially increasing memory and processing requirements for video processing circuits. (Emphasis provided.)

Furthermore Herrera fails to teach or suggest blending each of the Y values of the video signal with a corresponding Y value of the subpicture signal based on a corresponding alpha value to generate a set of blended Y values, blending each of the U values of the video signal with a corresponding U value of the subpicture based on a corresponding alpha value to

generate a set of blended U values and blending each of the V values of the video signal with a corresponding V value of the subpicture based on a corresponding alpha value to generate a set of blended Y values.

CONCLUSION

In view of the foregoing, it is respectfully asserted that all of the claims pending in this patent application are in condition for allowance.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666.

If the Examiner has any questions, he is invited to contact the undersigned at (626) 584-0386. Reconsideration of this patent application and early allowance of all the claims is respectfully requested.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR, & ZAFMAN LLP

Dated: December 20, 2006.

By
Farzad E. Amini, Reg. No. 42,261

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(310) 207-3800

CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this paper is being transmitted online via EFS Web to the Patent and Trademark Office, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450, on December 20, 2006.

Margaux Rodriguez *December 20, 2006*